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10/677,123	09/30/2003	John S. Wang	021795-000200US	3909

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EXAMINER	
SINGH, DALZID E	

ART UNIT	PAPER NUMBER
2633	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	**Application No.** 10/677,123	**Applicant(s)** WANG ET AL.
	Examiner Dalzid Singh	**Art Unit** 2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 May 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26,28-53 and 55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *11-24 and 38-47* is/are allowed.

6)☒ Claim(s) *1-10,25,26,28-37,48-53 and 55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) ☐ Notice of Informal Patent Application (PTO-152)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.	6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claim 1-10, 21-25, 28-37, 48-52 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuribayashi (US Patent No. 5,768,313) in view of Haner et al (US Patent No. 5,473,460).

Regarding claims 1, 28 and 55, Kuribayashi disclose an apparatus for processing a signal comprising:

an adaptive equalizer (as shown in Fig. 5) module for performing equalization on the electrical signal to produce an equalized signal, the adaptive equalization module comprising:

an analog filter adapted to receive and filter the electrical signal to produce a filtered output according to at least one filter coefficient (the analog filter comprises delays (D1, D2, D3 to Dn); as disclosed in the specification, applicant indicates analog filter comprising of delay lines (105, 106 and 107); see page 5, lines 28-31 of the specification),

an error generator adapted to receive the filtered output and generate an error signal from the filtered output according to an error function (see col. 4, lines 13-20), and a controller adapted to receive the error signal and provide at least one control signal to the analog filter for adjusting the at least one filter coefficient, the controller further adapted to detect a relationship between a change in the at least one filter coefficient and a change in the error signal and adjust the at least one filter coefficient according to the relationship to minimize the error signal (see col. 4, lines 36-67; the controller circuit which includes discriminating circuit determines the error and adjust the filter coefficient accordingly).

Kuribayashi discloses that the adaptive equalizer system is used with a transfer path which can take various form such as optical fiber (see col. 3, lines 20-28) and differs from the claimed invention in that Kuribayashi does not specifically disclose optical-to-electrical conversion module for receiving the optical signal and converting the optical signal into an electrical signal, coupled to the adaptive equalizer. However, as indicated by Kuribayashi if the adaptive equalizer is coupled to optical fiber, hence it is well known that there must be an optical to electrical conversion module to convert the optical signal to electrical signal. Haner et al is cited to show such well known concept. In col. 15, lines 13-17, Haner et al disclose optical detector for converting optical signal to electrical signal coupled to the laser interface (adaptive equalizer). Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide optical to electrical conversion module as taught by Haner et al to the adaptive equalizer of Kuribayashi. One of ordinary skill in the art would have been motivated to do such in order to provide an interface between optical domain and electrical domain.

Regarding claims 2, 3, 29 and 30, as shown in Fig. 5, Kuribayashi shows at least one filter coefficient comprises a plurality of filter coefficients (C1' C2' to Cn'), and wherein the relationship is a gradient estimate having multiple components, each component determined by varying only one of the filter coefficients and detecting a resulting change in the error signal (multiple components such as coefficient control circuits to vary the filter coefficient; extractor and discriminating circuit to detect error).

Regarding claims 4-6 and 31-33, as discussed above, the combination of Kuribayashi and Haner et al disclose adaptive equalizer comprising method of error generation. The combination differs from the claims invention in that the combination does not disclose specific techniques of detecting relationship (or comparing signals) using technique such as backward, centered or forward difference technique. However, since the combination is able to detect relationship (for example, Kuribayashi discloses discriminating circuit which detect or compare signals and generate error), therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to performed such detection using various well known techniques such as disclosed by applicant in order to precisely detect signal variation.

Regarding claims 7-10 and 34-37, as discussed above, the combination of Kuribayashi and Haner et al disclose adaptive equalizer comprising method of coefficient control (see claim 1) and differs from the claimed invention in that the combination does not specifically disclose that the coefficient control is performed using minimization algorithm such as quasi-Newton algorithm, conjugate gradient algorithm or steepest descent algorithm. However, such algorithms used for coefficient control is well known. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made provide such algorithm for coefficient control in order to equalize the signal.

Regarding claims 21, 22, 48 and 49, the combination of Kuribayashi and Haner et al disclose generation of error signal (see claim 1) and differ from the claimed invention in that the combination does not specifically disclose that the error signal operates on a clocked or un-clocked version of the filtered output. However, since the combination disclose the generation of error signal, therefore it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to generate the error signal using a clocked or un-clocked version in order to synchronize or asynchronies the signal.

Regarding claims 23, 24, 50 and 51, the combination of Kuribayashi and Haner et al disclose control circuit for controlling coefficient (it would have been obvious that the control circuit respond to control signal) and differ from the claimed invention in that the combination does not specifically disclose the control signal is analog or digital. However, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to provide the control signal in analog or digital format.

Regarding claims 25 and 52, as discussed above the combination of Kuribayashi and Haner et al discloses that the adaptive equalizer can be interface with optical domain comprising an optical receiver interface adapted to receive a first optical signal and convert the first optical signal into a first digital signal (see Fig. 2 of Haner et al; optical interface (212) received optical signal and convert the optical signal into electrical signal); and an optical transmitter interface (210) adapted to receive a second digital signal and convert the second digital signal into a second optical signal (the optical transmitter receives electrical signal and convert the signal into optical signal).

3. Claims 26 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuribayashi (US Patent No. 5,768,313) in view of Haner et al (US Patent No. 5,473,460) and further in view of Fatehi et al (US Patent No. 6,535,313).

Regarding claims 26 and 53, in view of the rejection of claim 25 and 52, the combination of Kuribayashi and Haner et al discloses that the adaptive equalizer can be used in optical domain by coupling to optical fiber. It would have been obvious that the fiber coupled to the adaptive equalizer is also coupled to a network system (i.e., first network) wherein the adaptive equalizer is the network access point. The combination differs from the claimed invention in that the combination does not specifically disclose system for sending data across inter-connected networks comprising a server coupled to the optical network access device, the server adapted to forward data between the first network and a second network via the optical network access device. Fatehi et al is cited to show optical networks comprising of servers or routers. In Fig. 1 or Fig. 3, Fatehi et al show plurality of nodes (or networks) coupled together, wherein the network further comprises of servers (data source/sink) and optical coupler functioning as the optical access to the server. Therefore, it would have been obvious to an artisan of ordinary skill in the art at the time the invention was made to use the adaptive equalizer of the combination to the network system of Fatehi et al. One of ordinary skill in the art would have been motivated to do such in order to reduce inter-symbol interference among the various channels.

Allowable Subject Matter

4. Claims 11-20 and 38-47 are allowed.

Response to Arguments

5. Applicant's arguments filed 09 May 2005 have been fully considered but they are not persuasive.

In the remark applicant indicates that the reference, Kuribayashi, does not disclose detection of relationship between a change in at least one filter coefficient and change in the error signal. As written, the claim indicates that only one detection of relationship is required. In col. 9, lines 24-37 and col. 10, lines 1-5, Kuribayashi discloses coefficient control means including discriminating means for discriminating sample value of the input digital signal and generating coefficient based on the value. As shown in Fig. 5, Kuribayashi shows a feedback system for adjusting filter coefficient. For example, in the first feedback loop, the input digital signal is influenced by a first filter coefficient. When the input digital signal is detected and discriminated, the filter coefficient is adjusted to a second filter coefficient. Therefore, based on this, Kuribayashi discloses detection of relationship between a change in filter coefficient through detection and discrimination of the input digital signal.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
July 15, 2005

JASON CHAN
SUPERVISORY PATENT EXAMINER
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